

We Need a Second NIH

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“In my opinion, the greatest risk for science is to stop taking risks,” Elias A. Zerhouni, director of the National Institutes of Health (NIH), has written. In furtherance of this theme, which holds sacred status among science strategists, here’s a risky proposal for enlivening future biomedical research by directing some significant portion of it *away* from the NIH: Cap the budget and programs of the Bethesda behemoth at their current levels, with increases to meet inflation. Thus, the NIH as we know it — call it NIH I — will remain intact. But, when federal finances loosen up, as they will some day, direct funds for biomedical research growth to a new government philanthropy. The newcomer, NIH II, would be purely a granting agency, with none of the intramural programs of NIH I. It would be specifically designed to be administratively nimble, risk-seeking, and operationally very different from the colossus that now dominates the health sciences.

The constant laments about NIH I’s inadequate funding relative to needs and promising scientific opportunities are valid, even after Congress doubled the budget to \$27 billion between 1998 and 2003. Following the money, hopeful researchers piled on the applications, while Congress, figuring it had done well by NIH I, has since held the budget about level. As a result, NIH I struggles heroically with a gargantuan and ever-growing influx of applications from a financially ravenous research community. In 2001, NIH I received 48,000 applications of all kinds; this year, about 80,000 are expected. In 1998, NIH I received some 24,000 applications for new and competing research project grants, the coveted ROIs for principal investigators; last year, the figure rose to 46,000, and this year 49,000 are expected. A mean mood pervades the grant-seeking community, which suspiciously regards any programmatic innovation as a diversion of its funds. Zerhouni has repeatedly had to defend the 1.2 percent of the overall budget that he’s devoted to speeding the transition from laboratory to bedside. “But that’s our money,” the old grantees complain.

There’s never enough money. But with slight increases having raised NIH I’s budget to over \$28 billion, suspicion intrudes that perhaps some things might be done better, but are not — because of bureaucratic inertia, old-boy ties, and, yes, the risk aversion common to established bureaucracies. Consider the plight of newly minted PhDs seeking NIH I’s money to launch their research careers. As we all know, because the elders of science often profess it, youth and creativity are the historic twosome of breakthrough scientific research. The future of the scientific enterprise depends on talented youngsters undertaking their own research, rather than serving as assistants under tenured, aging Herr Professors. Yet, the average age for receiving a first grant from NIH I is over 40. One reason is that older investigators, wiser and slicker about competing for grants, have tied up the great bulk of NIH I’s funds for independent projects. Bias and back scratching are forbidden and supposedly screened out by judicious selection of reviewers, but the peeved gossip among researchers suggests otherwise. The staff of NIH I is smart and industrious, but the organization they serve is creaky and old, encumbered with hoary practices and encrusted methods. Geriatric slowdown affects bureaucracies, too.

Failure to support the young is a long-recognized problem at NIH I, but the response has always been,

and remains, tepid, though the mournful rhetoric is top notch. In 2004, *Science* reported, “Experts have watched with alarm as the proportion of researchers under 35 receiving grants from NIH has slipped from 23 percent in 1980 to below 4 percent in 2001.” Since then, the situation has worsened. Reporting on the latest response to the neglect of scientific youth, Zerhouni recently cited in Congressional testimony the Pathway to Independence Program, designed “to support 175 recently trained scientists in their quest to become independent researchers at the earliest point in their careers.” That’s a piddling response. Annual PhD production in the health, medical, and psychological sciences totals over 20,000. NIH I annually approves funds for about 10,000 multi-year grants. The youth program is welcome, but, politically wise Zerhouni cautioned that it “cannot come at the expense of the need to provide continuing support to our most productive and already established scientists.”

The sluggish movement of grant applications through the NIH I review labyrinth has long been a great frustration for researchers eager to get on with their work. The average review time from submission to verdict was long stuck at nine months. In 2005, NIH I announced plans to shorten the review cycle for investigators seeking their first grants. It now reports success in speeding up the process so that rejected applicants are notified in time to rework and resubmit their proposals for the next review deadline. Welcome news, but in contrast to other government granting agencies, the NIH I review process is a monumental consumer of scientific expertise and time. To rate its applications, NIH I annually summons some 18,000 reviewers to Bethesda, where panels of 30 or more members meet face to face, usually for two days, three times a year, to rate the applications. The demand for reviewers is so great, and the duties so onerous, that NIH I officials say they’re scraping the barrel for recruits. Nonetheless, the ancient panel system persists as the dominant method for evaluating applications. But there’s some progress. Carefully exploring the cyberspace revolution, NIH I now reviews about 5 percent of applications via the Internet. Incredibly, the switch from paper applications (with appendices often running to hundreds of pages) to electronic submission first began in 2005. Just as you can’t hurry love, you can’t hurry NIH I.

Doubt that? Then consider NIH’s recently established Clinical and Translational Science Awards Program, which Zerhouni told Congress, “is the first in-depth redesign of our system of applied research in 50 years.” Fifty years!

My proposed NIH II would ideally exist in cyberspace, with a small staff receiving research applications and distributing them electronically to distant reviewers. No trekking to Bethesda for six days of meetings per year plus travel time. The youth deficit would be addressed by financial set asides for newly minted PhDs. And given the common complaint that sparse money leaves no distinction between many winners and losers in today’s desperate grants derby, why not experiment with a lottery to choose among applications rated minimally meritorious?

Unencumbered by tradition or prior commitments, NIH II could move swiftly and decisively — and take those risks that are so deeply valued. Of course, an old-boy network would eventually develop, and clever operators would learn to game NIH II. Those inevitabilities would simply mean that it’s time for NIH III.